THE MEDICINAL AND POISONOUS PLANTS OF INDIA.

Dammers, Guttifers, Silk-cottons, Teas, Tutsans, Water-peppers.

BY

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I

The Dipterocarpaceae are all natives of the hot damp forests of India and Malaya, except a few African species. Many are among the biggest trees in the forests and are valued for their magnificent timber. Many also produce useful gums, and some yield a very good quality of camphor. The seeds are generally oleaginous. There are 25 genera with 350 species.

The medicinal and poisonous Dammers belong to 5 genera, all represented within our limits: Dipterocarpus (Indo-Malaya); Dryobalanops (Borneo, Malaya); Hopea (Indo-Malaya); Shorea (Ceylon to Philippine Islands); Vateria (Seychelles, South India).

A. Calyx scarcely enlarged in fruit, segments reflexed ... Vateria

B. Calyx much enlarged in fruit, segments erect.

1. Fruiting calyx with a distinct tube covering the fruit. Fruit free.

a. Sepals developed into long wings, 4 ... ... Dryobalanops

b. Sepals developed into wings 2, the others very short ... ... Dipterocarpus

2. Fruiting calyx with an obscure tube; aestivation of the calyx imbricate.

a. Wings 3 long, 2 shorter ... ... Shorea

b. Wings 2 large, 3 small ... ... Hopea

Dipterocarpus.

The genus consists of 70 Indo-Malayan species.

Many species produce a valuable oleo-resin, known as wood oil, which is used in medicine.

The following are used in Dutch India—*D. gracilis* Blum., *D. littoralis* Blum., *D. retusus* Blum., *D. Spanoghei* Blum., *D. trinervis* Blum.—; in the Philippine Islands—*D. affinis* Brandis, *D. grandiflorus* Blanco, *D. pilosus* Roxb., *D. polyspermus* Blanco, *D. trinervis* Blum., *D. vernicifluus* Blanco—; in Indo-China—

D. alatus Roxb., *D. artocarpifolius* Pierre, *D. intricatus* Dyer, *D. Jourdainii* Pierre, *D. tuberculatus* Roxb., *D. turbinatus* Gaertn.—.

A. Calyx-tube in fruit without ribs or wings.
   1. Young branches glabrous or canescent ... *D. turbinatus.*
   2. Young branches more or less hairy ... ... *D. pilosus.*

B. Calyx-tube in fruit 5-angled or winged.
   1. Angles confined to the upper portion of the calyx-tube ... ... *D. tuberculatus.*
   2. Angles or wings prolonged to the base of the calyx-tube or nearly so.
      Angles winged ... ... *D. alatus.*

1. **Dipterocarpus alatus** Roxb. occurs in Chittagong, Burma, Tenasserim, the Andamans, Penang; extending to Siam and Indo-China.

In Cambodia the bark is considered tonic and depurative and prescribed in rheumatism. The bark of the young plant is used externally in rheumatism and in liver troubles. The oil is applied to ulcerated wounds.

In general the oleo-resin is applied externally in gonorrhoea.

Andamans: Gurjun—; *Bengal*: Battisal, Garjan, Shwetagarjan—; *Burma*: Kanyin, Kanyinbyu, Kanyinni, Kanyinwettaung—; *Cambodia*: Chhoeuteal, Trach—; *Chittagong*: Duliagurjan—; *Indo-China*: Chhoeu teal thom, Chhoeu teal tuc, Chor tuc, Dau con rai trang—; *Sinhalese*: Horagaha—.

2. **Dipterocarpus pilosus** Roxb. occurs in Sylhet, Chittagong, South Tipperah, Burma, Martaban, Mergui, the Andamans, the Malay Peninsula, and Siam.

The balsam is used in the treatment of gonorrhoea, gleet, and similar affections of the urinary organs.

Assam: Hollong—; *Tagalog*: Hagachac—.

3. **Dipterocarpus tuberculatus** Roxb. is distributed over Burma, Siam, and Cochin-China.

The oleo-resin is used with asafoetida and cocoanut oil as an application for large ulcers.

In Cambodia the roots are used in the treatment of hepatic troubles.

Burma: Eng, In Inbo, Kanyingok—; *Cambodia*: Khlong—; *Laos*: Mai bao, Mai tung—; *Siamese*: Mai rang—; *Taleing*: Sooahn—.

4. **Dipterocarpus turbinatus** Gaertn. f. occurs in Assam, Chittagong, Burma, the Andamans; extending to Siam and Cochin-China.

The oleo-resin is applied externally to ulcers, ring-worm, and other cutaneous affections. It is stimulant of mucous surfaces, particularly that of the genito-urinary system, and also diuretic. In gonorrhoea and other affections in which copaiba is generally employed, it has proved an effectual remedy.

Assam: Kuralsal, Kuroil, Tiliagurjan—; *Bengal*: Gurjan, Shwetagurjan, Tihyagurjan—; *Burma*: Inbo, Inkanyin, Kanyinbyu, Kanyingyi, Kanyinni, Kanyinnin, Kanyinwettaung, Kanyinwettaw, Kanyinywetgyi, Kanyinywetthe,

Maihow—; *Canarese*: Challane, Guge, Valivara—; *Chittagong*: Kaligurjan, Teliagurjan, Tiliagurjan—; *English*: Wood Oil Tree—; *Gujerat*: Gurjun—; *Magahi*: Kanyoung—; *Tagalog*: Mayapis—.

Dryobalanops.

The genus consists of 7 species, natives of the Malay Peninsula and Islands.

Dryobalanops aromatica Gaertn. inhabits the forests and lowlands on low hills of the Malay Peninsula and Archipelago.

The tree produces camphor oil and camphor, much used as a tonic and sudorific. The camphor is chiefly exported to China, where it is employed as a tonic and aphrodisiac; in Borneo itself it is used as a diuretic and in nephritic affections, and as a popular remedy for rheumatism.

China: Lung Nao Hsiang—; *Indo-China*: Camphrier de Baroum, Camphrier de Barros, Camphrier de Bornéo, Long nao thu, Ping pien—; *Malay*: Kapur barus—.

Hopea.

This genus numbers 50 Indo-Malayan species.

Hopea odorata Roxb. occurs from Pegu and Tenasserim to Cochin-China. It is also found in the Andamans.

In Cambodia the bark is used as an astringent in gingivitis.

Among the Burmese the resin, reduced to powder, forms a popular styptic.

Andamans: Rimda—; *Burma*: Thengan—; *Cambodia*: Koki—; *Lao*: Mai takien—.

Shorea.

This genus numbers 90 species spread from Ceylon to the Philippine Islands.

All the species abound in various kinds of copalline resins.

The following are used medicinally:—in the Philippine Islands—*S. Guiso* Blum., *S. malaanonan* Blum., *S. mangachapuy* F. Vill.—; in Cambodia—*S. cambodiana* Pierre, *S. Harmandii* Pierre.

The oil from the seeds of *S. stenoptera* Buck is officinal in Holland. The resin from S. Wiesneri Stapf. and various other species are officially recognized in Austria, Russia, and Spain.

Stamens 20-∞.

1. Leaves 15-25 by 10-15 cm. Petiole 2-2.5 cm. ... *S. robusta.*
2. Leaves 6.3-20 by 3.2-11.5 cm. Petiole 2.5-5 cm. *S. Tumbuggaia.*

1. **Shorea robusta** Gaertn. f. occurs in the Kangra district of the Punjab, from the Kalesar forest in the Ambala district along the sub-Himalayan tract to the Darrang district of Assam,

sometimes in the outer Himalayan valleys up to 5,000 feet; in the Garo Hills, Kamrup, the Khasia Hills, the Jaintia Hills, from the Santal Parganas through Chota Nagpur and Orissa to Ganjam, Jeypore, the Central Provinces, Vizagapatam.

Ayurveda practitioners freely prescribe the bark, leaves, fruit, and resin. Among Yunani doctors the resin and the oil seem to be more especially favoured.

The resin is regarded as astringent and detergent. It is used in dysentery, and for plasters and fumigations. It is commonly given for weak digestion, gonorrhoea, and as an aphrodisiac.

Arabic : Kaikahr—; *Bengal* : Sakher, Sakhu, Sakhua, Sakoh, Sal, Sala, Salwa, Sarj, Shal—; *Bhumij* : Sargi—; *Bombay* : Sal—; *Burma* : Enkhyen—; *Canarese* : Asina, Asu, Ashvakarna, Guggula, Kabbu, Sarja, Vamsa—; *Central Provinces* : Rinjal, Sal, Sarai—; *Deccan* : Ral—; *English* : Common Sal, Indian Dammer, Sal Tree—; *Garhwal* : Kandar—; *Garo* : Bolsal—; *Gujerati* : Ral—; *Hindi* : Sakher, Sakhu, Sakhua, Sakoh, Sal, Sala, Salwa, Shal—; *Kharwar* : Sakwa—; *Khond* : Jargi—; *Kolami* : Sarjum, Sekura—; *Kumaon* : Sal—; *Lepcha* : Takral, Teturl—; *Malayalam* : Maramaram, Mulappumarutu—; *Marathi* : Guggilu, Rala, Sajara—; *Nepal* : Sakwa—; *North-Western Provinces* : Kandar, Koron, Sakhu, Sal—; *Oudh* : Koroh—; *Persian* : Lalemoabbari, Lalemohari—; *Punjab* : Sal, Seral—; *Sanskrit* : Agnivallabha, Ashvakarna, Ashvakarnika, Chiraparna, Dhanya, Dirghaparna, Dirghashakha, Divyasara, Jaladashara, Jaranadruma, Kala, Kalalajodhbhava, Karshya, Kashayi, Kaushika, Kaushikahva, Kushika, Lalana, Latashankha, Latataru, Rala, Ralakarya, Sala, Salaniryas, Salaveshta, Sarja, Sarjakarya, Sarjarasa, Sarjjaka, Sasyasambara, Sayasamvera, Shankataru, Shankurriksha, Shasyasambara, Shura, Sidhaka, Sureshtaka, Tarkshyaprasava, Vallivriksha, Vansha, Vastakarna, Yakshadhupa—; *Santal* : Sarjom—; *Sinhalese* : Dammala—; *Tamil* : Attam, Kungiliyam, Shalam—; *Telugu* : Gugal, Guggilamu, Saluva, Sarjakamu, Sarjamu—; *Tharu* : Sakwa—; *Uraon* : Sekwa—; *Urdu* : Ral—; *Uriya* : Rengal, Sagua, Salo, Salwa, Shalua, Sodingi, Soringhi, Sorjjo—.

2. **Shorea Tumbuggaia** Roxb. is found in the forests of the Cudappah, North Arcot, and Chingleput hills, up to 3,000 feet.

The resin is used as an external stimulant.

English : Green Dammer—; *Malayalam* : Tampakam—; *Tamil* : Karundanbai, Karuppudamar, Tambagam, Tambai, Tambugai—; *Telugu* : Guggilamu, Jalari, Nalladammara, Nallaguggilamu—.

Vateria.

The genus consists of 3 species confined to South India and the Seychelles.

Vateria indica Linn. is found from North Kanara to Travancore up to 3,500 or 4,000 feet, chiefly in evergreen forests, but occasionally along rivers in deciduous forests. In Coorg both in the Ghat forests and east of the Ghats up to 3,500 feet, in the latter locality always in evergreen forest.

The fruit yields a solid fatty oil, which has obtained considerable repute as a local application in chronic rheumatism and some other painful affections.

Under the influence of gentle heat, the resin combines with wax and oil and forms an excellent resinous ointment; it is a good

substitute for officinal resin. Fine shavings are administered internally to check diarrhoea.

Arabic: Mukilijraka—; *Bengal*: Chundrus—; *Bombay*: Ral—; *Canarese*: Bilidhupa, Biliguggula, Dhupa, Dhupada, Dupa, Guggula, Maddidhupa, Mandadupa, Rala, Shandike—; *Ceylon*: Pinai—; *Coorg*: Bilidupa—; *Deccan*: Sufeddamar—; *English*: Indian Copal Tree, Piney Varnish Tree, White Dammer Tree—; *Greek*: Sandaraki—; *Hindi*: Kahruba, Sageddamar, Sandras—; *Malayalam*: Kunturukkam, Pantam, Payani, Payin, Perumpayani, Telli, Vellakkunturukkam—; *Persian*: Buejhudan—; *Sanskrit*: Ajakarna, Dhupa, Kundura, Mandadhupa, Marichapatraka, Pitaphada, Sarjaka, Shala—; *Sinhalese*: Hal, Haldumula—; *Tamil*: Attam, Kukkil, Kukkulu, Kundurukkam, Kungiliyam, Kungulu, Sadagulai, Tubam, Vellaikkundurukkam, Vellaikkungiliyam—; *Telugu*: Dupadamaru, Telladamaru, Tellaguggilamu—; *Tulu*: Lobhana, Paini, Tandoligeda—; *Urdu*: Guggul—.

II

The GUTTIFERAE are trees or shrubs with a resinous yellow or greenish juice. Except a few natives of the warm regions of North America, they are all intertropical; they are more numerous in America than Asia, and are comparatively rare in Africa. There are 40 genera with about 630 species.

The members are the source of gum resins endowed with emetic and cathartic properties. The seeds are mostly oleaginous and the oils and fats are used medicinally. Some of the barks are diuretic. The rind of the fruit may be astringent.

Among the gum-resins gamboge may be mentioned as containing α—, β—, and γ— garcinolic acids.

An essential oil was found to consist of terpene and camphor.

Cambogin, a toxic resin, has been obtained from *Garcinia cambogia* Desr.

The medicinal and poisonous Guttifers of the world belong to 11 genera: ALLANBLACKIA (tropical Africa); CALOPHYLLUM (tropics, chiefly Old World); CLUSIA (warm America); GARCINIA (tropical Asia, Africa, and Polynesia); MAMMEA (West Indies); MESUA (tropical Asia); MORONOBEA (Guiana, North Brazil); OCHROCARPUS (palaeotropical); PENTADESMA (Western tropical Africa); RHEEDIA (tropical America, Madagascar); SYMPHONIA (Madagascar, tropical Africa and America).

The medicinal Guttifers of India belong to 4 genera: CALOPHYLLUM, GARCINIA, MESUA, OCHROCARPUS.

A. Ovary-cells 1-ovuled; stigma sessile or subsessile, peltate, entire or with radiating lobes; berry indehiscent.
   1. Calyx of 4 or 5 sepals ... ... GARCINIA.
   2. Calyx closed in bud, bursting in 2 valves ... OCHROCARPUS.

B. Ovary with 1, 2, or 4 erect ovules; styles slender (rarely styles 2); stigma peltate or 4-fid or acute; fruit fleshy, rarely dehiscent.
   1. Ovary 1-celled, 1-ovuled, style 1, stigma peltate CALOPHYLLUM.
   2. Ovary 2-celled, 4-ovuled, style 1, stigma peltate MESUA.

CALOPHYLLUM.

The genus consists of 80 tropical species, mostly inhabiting the Old World.

The bark is diuretic; the resin is emetic and cathartic.

The following species are used medicinally: in China, Indo-China, and the Islands of the Indian Ocean—*C. inophyllum* Linn.—; in Madagascar— *C. laxiflorum* Drake, *C. parviflorum* Bojer, *C. Tacamahaca* Willd.—; in the West Indies—*C. Calaba* Jacq.—; in Brazil—*C. brasiliense* Camb.—; in Colombia—*C. Calaba* Jacq., *C. Mariae* Pl. and Tr.—.

1. Leaves 10-20 by 7.5-10 cm., petiole 3.8-3.2 cm.	...	*C. inophyllum.*
2. Leaves 7.5-12.5 by 3.2-5 cm.; petiole 13-20 mm.	...	*C. elatum.*
3. Leaves 5-10 by 3.2-5 cm.; petiole 4 mm.	...	*C. apetalum.*

1. **Calophyllum apetalum** Willd. occurs in the Western Ghats of the Bombay Presidency, and from Mysore to Travancore up to 1,000 feet; on the banks of rivers and backwaters on the West Coast from North Kanara southwards.

The resin acts as a vulnerary resolvent, and anodyne.

The oil obtained from the seeds is used as medicine in leprosy and cutaneous affections, and in infusion, mixed with honey, in scabies and rheumatism.

Bombay: Cherupinnai, Sarapuna—; *Canarese*: Babbe, Bobbe, Bobbi, Irai, Iria, Kalhonne, Kalpun, Kirihonne, Kullponne—; *Marathi*: Bobbi, Irai—; *Tamil*: Sirubinnai—; *Travancore*: Attupunna, Kattapunna, Mannapunna, Purapunna, Serupunna—; *Tulu*: Kaiponne, Kalponne, Seruponne, Siriponne—.

2. **Calophyllum elatum** Bedd. is found in the evergreen forests of the Western Ghats, and adjoining hills, from South Kanara to the Pulneys.

The gum is feebly astringent.

Bombay: Pun, Sirpon—; *Canarese*: Bobbi, Holehonne, Kuve, Siripunehuve, Siripunekuve, Siruponne, Srihonna, Surponnebobbi—; *English*: Malabar Poon, Poon Tree, Sirpoon Tree—; *Kadir*: Karanguttiyan, Viri—; *Malayalam*: Kattupunna, Malampunna, Pun, Pungu, Punna, Punnappai—; *Marathi*: Nagani—; *Sinhalese*: Kina—; *Tamil*: Kattupinnai, Pinnai, Pongu, Pungu—; *Tulu*: Pune—.

3. **Calophyllum inophyllum** Linn. is essentially a littoral species to be found along the East and West coasts of the Peninsula, Burma, the Andamans, Malaya, and Ceylon. It is distributed to the sea-shores and the islands of East Africa, Australia, and Polynesia.

The bark is astringent and useful in internal haemorrhages. The juice is used as a purgative, and is said to be very powerful in its action.

In Java the tree is supposed to possess diuretic properties.

In Cambodia the leaves are prescribed as an inhalation in migraine and vertigo. The oil from the kernels of the seeds is used in scabies.

The leaves, soaked in water, are employed as an application to inflamed eyes, in the Malay Archipelago.

In Madagascar the leaves are applied to sore eyes; the pounded bark is used topically in orchitis; the gum resin is considered vulnerary, resolvent, and anodyne; the oil from the seeds is a

reputed antisoric, and is much used in the treatment of rheumatism; a decoction of the root is used in dressing ulcers.

The tears which distil from the tree and its fruit are emetic and purgative (Rheede).

The gum which flows from the wounded branches, mixed with strips of the bark and leaves, is steeped in water, and the oil which rises to the surface is used as an application to sore-eyes. It is said to be a useful remedy for indolent ulcers.

In New Caledonia the gum resin is applied to ulcerous wounds.

The fixed oil, expressed from the kernels of the seeds, is said to cure scabies. It exercises a great beneficial influence over the mucous membrane of the genito-urinary organs, and is therefore highly useful in the treatment of gonorrhoea and gleet. Externally, it is a good and useful embrocation in rheumatism and gout. The watery paste of the kernel of the seeds, applied to the painful joints and dried by the heat of fire, often affords a great relief in the same diseases, and may be resorted to in the absence of the oil.

Bengal: Punnag, Sultanachampa, Sultanachampaca—; *Betsileo*: Foraha—; *Betsimisaraka*: Forho—; *Bicol*: Dancalan—; *Bombay*, Udi, Undi—; *Burma*: Pengnyet, Phounniya, Phungnyet, Ponnyet, Pungnyet—; *Cambodia*: Kchyuong—; *Canarese*: Honne, Huhonne, Nameru, Pinnaikai, Ponne, Surahonne, Vuma, Wuma—; *Ceylon*: Domba, Dommakkottai, Punnai—; *Chinese*: Hu T' ung Lei—; *Cutch*: Udi—; *Deccan*: Surfan, Surpanda, Undi—; *English*: Alexandra Laurel, Alexandrian Laurel—; *Fiji*: Dilo—; *Guam*: Daog, Daok—; *Hawaii*: Ramani, Kamanu—; *Hindi*: Sultanachampa, Surpan, Surpunika, Undi—; *Hova*: Tsindelo—; *Ilocano*: Bitaog, Bitog, Pamitaoguen, Pamitlaten—; *Indo-China*: Ho dong, Mu u—; *Konkani*: Unddi—; *Madagascar*: Foraha, Vintanina—; *Malay*: Betan, Bintangor bunga, Penaga laut, Pudik—; *Malayalam*: Pouna, Punna—; *Marathi*: Nagchampa, Puniag, Surangi, Undag, Undela, Undi, Wundi—; *Mauritius*: Bois Tacamaca—; *New Caledonia*: Pit, Tamanu, Vara—; *Oceania*: Ndilo—; *Pampangan*: Bitaog, Palomaria—; *Philippines*: Birog, Bitanhol, Bitoc, Dingcalin, Palomaria de playa, Tamanian, Vitam—; *Rarotonga*: Tamanu—; *Samoa*: Fetau—; *Sanskrit*: Nagachampa, Nameru, Punnaga, Purosakeshara, Surangi, Tungakeshara—; *Seychelles*: Takamaka—; *Sind*: Duggerphul, Dugurphort, Purraya, Purreya, Surangi, Undi—; *Sinhalese*: Domba, Dombagaha, Dombatel, Teldomba—; *Spanish*: Palo Maria, Palo de Santa Maria—; *Tagalog*: Bancalan, Bitanhol, Dancalan, Dincalin, Palomaria, Tamauian—; *Tahiti*: Tamanu—; *Taimoro*: Voakotry—; *Tamil*: Nagam, Nameru, Pinnai, Punnagam, Punnai—; *Telugu*: Nameru, Pouna, Punnaga—; *Tongking*: Cay mu hu—; *Tulu*: Ponne—; *Uriya*: Polang, Punang, Punnango—; *Visayan*: Bitaog, Dancalan—; *Zambales*: Bitaoi—.

Garcinia.

The genus numbers 200 species scattered over the tropical regions of the Old World.

Astringent properties are met in the bark and in the rind of the fruit of some species. The gum resins are powerful, drastic cathartics.

The following are used medicinally:—in China—*G. Mangostana* Linn., *G. Morella* Desc.—; in Indo-China—*G. Hanburyi* Hook, f., *G. Mangostana* Linn.—; in Cambodia—*G. Harmandii* Pierre, *G. Lanessanii* Pierre, *G. Mangostana* Linn., *G. Olivieri* Pierre, *G. Vilersiana* Pierre—; in Malaya—*G. dulcis* Kurz., *G. Mangostana* Linn.—; in the Philippine Islands—*G. Mangostana* Linn., *G. spicata*

Hook. f., *G. venulosa* Chois.—; in New Caledonia— *G. corallina* Vieil.—; in West Tropical Africa—*G. Conrauana* Engl., *G. Elliotii* Engl., *G. gnetoides* Hutch. and J. M. Dalz., *G. guineensis* Willd., *G. Kola* Heckel, *G. Mannii* Oliv., *G. ovalifolia* Oliv., *G. polyantha* Oliv.—; in Southern Africa— *G. Livingstonii* T. And.

A. Sepals and petals 4 each.

1. Stigma entire. Stamens of male flowers in a globose central mass ... ... *G. atroviridis.*

2. Stigma divided into rays, or deeply 4-lobed.

I. Stamens of male flowers in 4 masses or in a 4-lobed mass surrounding the rudimentary ovary; anthers oblong, dehiscing vertically.

a. Leaves 15-25 cm. ... ... *G. Mangostana.*

b. Leaves 10-15 cm. ... ... *G. cornea.*

II. Stamens of male flower in a central shortly-stalked 4-angled or columnar mass; anthers quadrate, dehiscing vertically; rudimentary ovary usually absent.

Male flower in 3-∞-flowered, terminal and axillary fascicles; fruit subglobose or ovoid, tip mamillar.

a. Leaves 6.3-9 cm. ... ... *G. indica.*

b. Leaves 7.5-12.5 cm. ... ... *G. Cowa.*

III. Stamens of the male flowers in a subglobose mass; anthers adnate, orbicular, dehiscence circumsciss, rudimentary ovary absent.

a. Leaves 10-15 by 3.8-7.5 cm. ... ... *G. Morella.*

b. Leaves 15-20 by 7.5-10 cm. ... ... *G. heterandra.*

B. Sepals and petals 5, very rarely 4; filaments connate in 5, rarely 4 erect distant pedicelled spathulate bodies, antheriferous at the top, free portions very short.

I. Leaves 23-45 by 5-10 cm. long ... ... *G. xanthochymus.*

II. Leaves 12.5-25 cm. long ... ... *G. dulcis.*

1. **Garcinia atroviridis** Griff. is found in Upper Assam, at Tabong, in Singapore, Johor, Malacca, Perak, and Penang.

The fruit is used medicinally by the Malays.

Malay: Asam gelugur—.

2. **Garcinia cornea** Linn. is found from East Bengal to Tenasserim, whence it extends to the Malay Archipelago.

The tree yields an inferior kind of gamboge used medicinally in Burma.

3. **Garcinia Cowa** Roxb. occurs in Eastern Bengal, Assam, the Eastern Peninsula, and the Andaman Islands.

The gum-resin is used medicinally by Burman practitioners.

Bengal: Kowa—; *Burma*: Madow, Taungthale, Toungdalai—; *Hindi*: Cowa—; *Ho*: Soroa—; *Uriya*: Sarbana—,

4. **Garcinia dulcis** Kurz is found cultivated in the Malay Peninsula. It is distributed to the Malay Islands.

The oily seeds are sold in the drug shops of Malaya as a remedy for dysentery and chronic diarrhoea.

Malay : Bijimundu, Mundu—.

5. **Garcinia heterandra** Wall. is found in Pegu and Tenasserim up to 4,000 feet.

The gum-resin is occasionally, though not extensively, employed as a medicine by Burman native practitioners.

Burma : Thanatdau, Thanattau—.

6. **Garcinia indica** Chois. is often cultivated; it is found in Konkan, North Kanara, Goa, the Western Ghats of Bombay, South Kanara, Coorg, and Wynaad.

The fruit, either green or ripe, is much used by Ayurveda practitioners.

The Apothecaries of Goa prepare from the juice of the fruit a very fine purple syrup, which is used in bilious affections. The bark is astringent, and the young leaves, after having been tied up in a plantain leaf and stewed in hot ashes, are rubbed with cold milk and given as a remedy for dysentery.

The oil of the seeds is much used for the preparation of ointments, suppositories and other pharmaceutical purposes. It has been used as a local application to ulcerations, fissures of the lips, hands, etc., by partly melting it and rubbing on the affected part.

Bombay : Kokam—; *Canarese* : Ambsol, Dhupadamara, Murgala, Murginahali, Tittidika—; *Deccan* : Kokamb, Ratambi—; *English* : Wild Mangosteen—; *Goa* : Brindao, Brindoeiro—; *Gujerati* : Kokam—; *Hindi* : Kokam—; *Konkani* : Birondd, Birondi, Ratambi—; *Malayalam* : Punampuli—; *Marathi* : Amsole, Bhirand, Chirand, Katambi, Kokam, Kokamb, Ratambe—; *Matheran* : Kokam, Ratamba—; *Sanskrit* : Amlabija, Amlapura, Amlashaka, Amlavriksha, Amlavrikshaka, Atyamla, Bijamla, Chudamla, Chukra, Chukramla, Chukraphala, Phalamlaka, Puramla, Raktapuraka, Rasamla, Shakamla, Shreshthamla, Tintidika, Tittidiphala, Vrikshamla—; *Tamil* : Murgal—; *Tulu* : Puranapuli—.

7. **Garcinia Mangostana** Linn. is cultivated on the Western Coast of the Madras Presidency, the Nilgiris, in Goa, but very rarely in the Bombay Presidency. It is also cultivated all over the Malay Peninsula.

According to Rumphius, the bark and young leaves are employed by the Macassars in diarrhoea, dysentery and affections of the genito-urinary tracts, and also as a wash for aphthae of the mouth.

In Cambodia the bark of the plant and the rind of the fruit are used as astringents in dysentery and diarrhoea.

The rind of the fruit is a well-known astringent useful in the treatment of diarrhoea and dysentery. Waring and others have strongly recommended its use in chronic diarrhoea of children. It has also been employed successfully as a febrifuge. A very strong decoction is also recommended as an external astringent application.

The powdered rind of the dried fruit in daily doses of 60-120 grains dispensed in 3-4 portions gave satisfactory results in 63.8 per cent of amoebic—36 treated—and 66.6 per cent cases of non-amoebic—15 treated—dysentery, and in 72.0 per cent cases of diarrhoea other than dysentery—45 treated—. Mangostin was extracted from the dried rind and tried clinically. It was found to be very inferior to the powdered rind as an antidiarrhoeal agent (Caius and Mhaskar).

Bengal : Mangustan— ; *Bombay* : Mangostin, Mangustan— ; *Burma* : Mangkob, Mengkop, Mengut, Mimbu, Mingut, Youngzalai— ; *Cambodia* : Mongkhut— ; *Chinese* : Shan Chu Kuo, Tu Nien Tzu— ; *English* : Mangosteen— ; *French* : Mangoustan cultivé— ; *Hindi* : Mangustan— ; *Indo-China* : Mang cut, Mung khut— ; *Jolo* : Manguis— ; *Malaya* : Manggis, San chook hok— ; *Malayalam* : Manggusta, Sulampuli— ; *Marathi* : Mangastin— ; *Portuguese* : Mangosta— ; *Sinhalese* : Mangus— ; *Spanish* : Mangostan, Mangostan de la India— ; *Tamil* : Sulambuli—.

8. **Garcinia Morella** Desrous. occurs in Eastern Bengal and the Khasia Hills; in the evergreen forests of North Kanara and the Western Ghats, from South Kanara and Mysore to Travancore, up to 3,000 feet; in Ceylon, Malacca, Singapore, and Siam.

The gamboge is considered a valuable hydragogue cathartic. It also possesses anthelmintic properties. It is used in dropsical affections, amenorrhoea, obstinate constipation, and as a vermifuge.

The stem rubbed with water is a household remedy as a local application to rising pimples and boils, and often cuts them short.

Bengal : Tamal— ; *Burma* : Thamengut— ; *Canarese* : Aradala, Arasinagurse, Devanahuli, Jarize, Jarigehuli, Kankutake, Kankutgal, Punarapuli— ; *Ceylon* : Korakkappuli, Makki— ; *Chinese* : T'eng Huang— ; *English* : Gamboge Tree— ; *Hindi* : Tamal— ; *Kadir* : Sikiri— ; *Malayalam* : Daramba, Karukkampuli, Makki, Pinnarpuli, Pulinjakka, Valakkanna, Valogam— ; *Marathi* : Tamil— ; *Sanskrit* : Amritadruma, Kalaskandha, Kalatala, Lokaskandha, Mahabala, Niladvaja, Nilatala, Tama, Tamala, Tapichcha, Tapinja, Tapitha— ; *Sinhalese* : Gokatu, Kanagoraka, Kanogoraka, Kokatiya— ; *Tamil* : Irevalsinni, Makki, Solaipuli— ; *Telugu* : Pasupuvarne, Revalchinni— ; *Tulu* : Jarige, Jarigepuli, Kanakotekay—.

9. **Garcinia xanthochymus** Hook. f. occurs in Eastern Bengal and Eastern Himalaya, Burma, Penang, the Andamans, the Northern Circars, Ganjam, the Western Peninsula on the Ghats from Bombay to North Kanara, Mysore, Coorg, the Nilgiris and North Travancore up to 3,500 feet.

The fruit, which is yellow and of the size of a small apple and very acid, sweetish when ripe, edible, is used for the same purposes as that of *G. indica;* it is dried and made into a kind of Amsul. A sherbet made with about 1 oz. of the Amsul, with a little rock-salt, pepper, ginger, cumin and sugar, is administered in bilious conditions.

Assam : Tepor, Tezpur, Tihur— ; *Bengal* : Chalate, Dampel, Tamal— ; *Bombay* : Dampel, Onth, Osth— ; *Burma* : Madau, Matau— ; *Canarese* : Devangi, Deavkai, Devagarige, Devajarige, Divarige, Gansargi, Gurse, Hirekanigu, Janagi, Javangi, Neralemavu— ; *Ceylon* : Egg-tree, Simaigoraka— ; *Coorg* : Divarige, Nelamavu, Vate— ; *Garo* : Manhola— ; *Gujerat* : Karamala,

Ota—; *Hindi*: Dampel, Ota, Tamal—; *Kadir*: Anavaya—; *Konkani*: Dharambe—; *Lao*: Mai dah—; *Marathi*: Jharambi, Ota—; *Sanskrit*: Avika, Bhavana, Bhavishya, Bhavya, Kalakhanda, Kusumodar, Lamphala, Pichchalabija, Samputanga, Tamala, Tapinjha, Vakrashodana—; *Saora*: Lollorimanu—; *Sinhalese*: Cochingoraka, Ratagoraka—; *Tamil*: Kulavi, Malaippachai, Malaippuli, Pachilai, Pachumbadi, Tabinjam, Tamalam—; *Telugu*: Ivarumamidi, Sikatimramu, Sitakamraku, Tamalamu—; *Tulu*: Jarige—; *Uriya*: Cheoro, Chiuri, Sitambu—.

Mesua.

The genus consists of 3 species, natives of tropical Asia.

Mesua ferrea Linn. occurs in the mountains of Eastern Himalaya and Eastern Bengal, Assam, Tenasserim, Burma, the Andamans; in the evergreen rain-forests of North Kanara and South Konkan; in the forests of the Western Ghats from South Kanara to Travancore, up to 5,000 feet; and in Ceylon.

The bark and roots are considered to be, in infusion, an excellent tonic bitter.

The bark is mildly astringent and feebly aromatic. Combined with ginger it is given as a sudorific.

The flowers are astringent and stomachic. In many localities they are used for cough, especially when attended with much expectoration. A paste made of the flowers with butter and sugar is used in bleeding piles and burning of the feet.

In North Kanara and Bengal the oil of the seeds is used as an embrocation in rheumatism, and found useful in the treatment of itch. It is also employed as an antidote for snake poison.

The unripe fruits of this plant are aromatic and sudorific. The flower buds are used in dysentery. A syrup of flower buds 1 in 10 was used in acute cases of dysentery in the out-patient department; mild cases were cured by its use, but in very acute and severe cases, it was found to be inefficacious (Koman).

The leaf and the flower are among the best snake remedies of Ayurveda, and they are still very much used in Bengal as an antidote to snake and scorpion venoms. But Caius and Mhaskar have shown experimentally that no part of the plant is an antidote to either snake or scorpion venom.

Assam: Nahor—; *Behar*: Nagkeshur—; *Bengal*: Nagesar, Nagkesar—; *Bombay*: Nagchampa, Thorlachampa—; *Burma*: Gangau, Kangau—; *Canarese*: Kanchana, Kasara, Nagachampa, Nagakesara, Nagasampage, Nagasampige—; *Ceylon*: Naka—; *Coorg*: Atta, Iruppumara—; *Deccan*: Nagchampa—; *English*: Ceylon Iron-wood, Ironwood of Assam—; *French*: Arbre de fer, Bois d'anis, Bois de fer—; *Hindi*: Naghas, Nagkesar—; *Indo-China*: Thiet luc moc, Vap—; *Kadir*: Peri, Suruli—; *Konkani*: Nagchampa—; *Magahi*: Kainggo—; *Malay*: Matopus, Penaga kunyet, Penaga lilin, Penaga patih, Penaga sabat, Penaga suga—; *Malayalam*: Nágachempakam, Nanga, Peri, Vainavu, Veluttachempakam, Veluttapala—; *Marathi*: Nagachampa, Nagchampa, Nagchampha, Nagchapha—; *Michi*: Nahshor—; *Persian*: Narmishka—; *Pulaiya*: Atuponnai—; *Punjab*: Nagkesar—; *Sanskrit*: Bhujangakhya, Champeya, Hema, Hemakinjalka, Ibhakhya, Kanchana, Kanchanavhaya, Kanakavhaya, Kesara, Keshara, Kinjalka, Mahaushadha, Naga, Nagakeshara, Nagakhya, Nagakinjalka, Nagapushpanaga, Nagaya, Phalaka, Phanikeshara, Pinjara, Sunnagakeshara, Pushparachana, Rajapushpa, Rukma, Shatapadapriya, Suvarna, Suvarnakhya,

Svaraghatana—; *Sind*: Nakesuru—; *Sinhalese*: Deyana, Na, Nagaha—; *Tagalog*: Malabocboc, Malabucbuc—; *Tamil*: Irul, Karunangu, Malainangu, Mannainangu, Naganchambagam, Nagappu, Nagesuram, Nangu, Nirnangu, Patai, Pudangoli, Sirunagappu, Tadinangu—; *Telugu*: Gajapushpamu, Kesaramu, Kinjalkamu, Nagachampakamu, Nagakesaramu, Sikatimanu, Suvarnamu—; *Tinnevelly*: Nang—; *Tulu*: Kesara, Nagasampai—; *Urdu*: Narmishka—; *Uriya*: Nageshvar, Nageshvoro, Nagokesoro—.

Ochrocarpus.

The 10 species of this genus inhabit the tropical regions of the Old World.

O. pentapetalus Blanco is used medicinally in the Philippine Islands, *O. Harmandii* Pierre in Indo-China, and *O. africanus* Oliv. in Tropical West Africa.

Ochrocarpus longifolius Benth. and Hook. fil. occurs in the Western Ghats of the Konkan, North Kanara, Malabar and Coimbatore; it is cultivated in the Northern Circars.

The flower-buds possess astringent and aromatic properties. They are used as a tonic in Persia.

The flowers are stimulant and carminative, useful in some forms of dyspepsia and in haemorrhoids.

Bengal: Nagakesar Punnangachcha, Rajachampaka—; *Bombay*: Suringi, Tambranagkesar—; *Canarese*: Gadhavunate, Phatapale, Punay, Puniye, Punnaga, Suragi, Surgi, Surungi, Unate, Wundy—; *Deccan*: Gardundi—; *Gujerat*: Punnaga, Ratinagkesar, Surapunnaga—; *Hamadan*: Normush—; *Hindi*: Nagkesar, Pulaga, Punnaga, Sultanachampaka—; *Konkan*: Ramundi, Suringi, Surong, Surongi—; *Malayalam*: Surampurna—; *Marathi*: Godiyundina, Punnag, Suringi, Undali—; *Matheran*: Godundipuwag, Harkia, Satwin, Surangi—; *Persian*: Nagkeshur, Tambra—; *Sanskrit*: Aruma, Devavallabha, Kamboge, Kesari, Keshara, Keshava, Kumbhika, Nagakeshara, Nagapushpa, Pandunaga, Pataladruma, Punnaga, Purusha, Purushakhya, Raktakeshara, Raktapushpa, Raktarenu, Raktavriksha, Surangi, Tunga— *Tamil*: Surabunnagam, Surabunnai, Valai—; *Telugu*: Suraponna, Surapunnagamu—; *Uriya*: Churiana, Surongo—.

III

The Bombacaceae number about 150 species grouped in 21 genera. They are all arborescent, and principally tropical, and include some of the largest trees.

Medicinal properties are exhibited by members of 4 genera: Adansonia, Bombax, Ceiba, Pachira. The last named is not represented in India.

A. Calyx 5-cleft ... ... Adansonia.

B. Calyx truncate or irregularly 3-5-lobed.

I. Branches of the staminal tube 1-antheriferous ... Bombax.

II. Branches of the staminal tube 2-3 antheriferous ... Ceiba.

Adansonia.

This genus consists of 10 species inhabiting the tropics of the Old World.

A. digitata is used medicinally in whatever country it is found growing. *A. Grandidieri* Baill. and *A. Za* Baill. are similarly used in Madagascar, *A. madagascariensis* Baill. in Madagascar and South Africa, and *A. Gregorii* F. Muell. in North Australia.

Adansonia digitata Linn., indigenous in tropical Africa, is grown in many places in India. It is pretty common about Madras, but is chiefly met with in Bombay, being plentiful on the coast.

The fruit is composed largely of a dry acid pulp which, in Bombay, is mixed with butter-milk and used as an astringent in diarrhoea and dysentery. In the Konkan, the pulp with figs is given in asthma; with the addition of cumin and sugar it is made into a sherbet, and administered in bilious dyspepsia.

According to the Bombay Gazetteer, the wood possesses antiseptic properties, and the bark is antiperiodic and a useful substitute for quinine in low fever.

The bark was at one time exported to Europe and used as a febrifuge in lieu of cinchona bark. It is still highly commended as an antiperiodic in the West Indies and in some parts of South Africa. In Cameroons it is sometimes used medicinally like the leaves.

In Gold Coast the bark is used instead of quinine for curing fever. The cream of tartar surrounding the seeds is made into a cooling drink in cases of fever. The pulp of the fruit is considered a specific in putrid pestilential fevers.

The native medicinal use of the pulp as a remedy or palliative and diaphoretic for fever and dysentery is widespread in tropical Africa, and the article was for a time exported to Europe from the East Sudan for this purpose. In Senegal, dysentery is treated by giving rice-water in which rust has been boiled and the baobab pulp added. Smallpox is similarly treated, and also a thick emulsion of the pulp is put in the eyes of the patient several times a day.

In Gambia the root is used as a febrifuge.

The dried leaves in powder form are credited with medicinal properties, promoting perspiration and preventing kidney and bladder troubles; they have been proved serviceable in diarrhoea, fevers, and other maladies. In Senegal an infusion of the powder is used internally or locally applied for a variety of inflammatory conditions, as a preventive of fever, for dysentery, internally or as a hip-bath, and similarly for genito-urinary conditions; also as a lotion for earache, ophthalmia, etc.

In Nigeria the leaves coarsely pounded are boiled with bran and salt or plant ashes, and administered to horses in bolus form. As a food, given in large quantity, this preparation keeps a horse in good condition without fattening, or maintains strength on a journey; as a medicine, given in small bulk, it is a tonic and blood maker, and is also given for conditions with subcutaneous swellings due to insect bites.

In Sierra Leone the leaves are used as a prophylactic against fever in the rains, to check excessive perspiration, and as an astringent. An infusion of both flowers and leaves is used for

respiratory and digestive disorders and for eye inflammations. Locally the leaves are applied to reduce inflammatory swellings, or boiled to make a hot lotion, or burnt as a fumigation.

In Hausa a cooling drink is prepared by breaking off a piece of the shell, pouring in water, loosening and mixing the pulp by stirring, and then boiling the emulsion; the beverage is taken cold. The pulp burns with an irritating smoke, and has been used as a fumigant to keep biting insects at a distance from domestic animals.

In Senegal the inner fibrous part of the shell is made into a decoction and used as an emmenagogue. The seeds, roasted and pulverised, as well as the latex, are applied for toothache and inflammation of the gums. A decoction of the young plant from which the bark has been removed is used as an eye remedy. The gummy fluid from the bark of the tree and a powder scraped from the outside of the fruit are applied to cleanse foul sores, stimulating and promoting granulation.

In Madagascar, La Reunion, and Mauritius the leaves are given as an emollient in dysentery and inflammatory fevers. The pulp of the fruit is used in haemoptysis, dysentery, and diarrhoea.

Afrikaans: Krimmetatboom—; *Ajmere*: Kalbriskh, Kalpbriskh—; *Akwapim*: Dadee, Odadee—; *Angola*: Imbondeiro, Nbondo—; *Arabic*: El omarah, Gongoleis, Homar, Hujed, Humar, Oufa, Tabaldi—; *Awuna*: Alagba—; *Bafo*: Njobwih—; *Bakossi*: Njobwele—; *Bakundu*: Ngubwele—; *Balondo*: Ngubwele—; *Balong*: Njobwih—; *Bambara*: Molodo, Sira, Tedum—; *Basari*: Niturr—; *Batanga*: Ngubwele—; *Bemoba*: Toreg—; *Benin*: Ushi, Usi—; *Bombay*: Choyarichinch, Gorakhaamli, Gorakhchincha, Gorokhchintz—; *Brong*: Ala—; *Canarese*: Brahmamlika, Magimavu—; *Chiswina*: Muwugu—; *Dagomba*: Tua—; *Dagarti*: Tuo—; *Deccan*: Hathikhattyan—; *Delhi*: Kalbriskh, Kalpbriskh—; *Dutch*: Apenbroodbloom—; *English*: African Calabosh, Baobab, Cork Tree, Cream of Tartar Tree, Ethiopian Sour Gourd, Maputa, Sour Gourd—; *Ewe*: Adido, Alagba—; *Falor*: Ba—; *Fanti*: Efuo-bodedwo, Efuobrodidwa—; *French*: Arbre de mille ans, Baobab, Baobab d' Afrique, Boabab, Calebassier du Sénégal, Grosmapou, Pain de singe—; *Fufulde*: Bokki—; *Fulani*: Boha, Boki, Bokki—; *Ga*: Shadzo—; *Gbari*: Kwahi—; *German*: Adansonie, Boabab—; *Gold Coast*: Cream of Tartar Tree—; *Guam*: Toto—; *Gujerat*: Bukha, Gorakhaamli, Moramlreli, Rukhdo—; *Hausa*: Kuka—; *Hindi*: Gorakamali, Gorakhamli, Goramlichora—; *Italian*: Baobab—; *Kabure*: Taelu, Telu—; *Kamba*: Mwamba—; *Kanuri*: Kuka—; *Khartoum*: Gongalasu—; *Konkomba*: Nitule—; *Kontagora*: Kuka—; *Koranko*: Sire, Sirele—; *Kratchi*: Kellai, Kelle—; *Krepi*: Dindo, Dodo—; *Krobo*: Saletcho, Salo—; *Lagos*: Ushe—; *Limba*: Kutidi—; *Lokko*: Hokbawai, Sakwi mbawi—; *Losso*: Telo—; *Makalanga*: Mguya—; *Malinke*: Boki—; *Mandingo*: Sito—; *Marathi*: Gorakhchinch—; *Masai*: Ol imisora—; *Matabele*: Umkomo—; *Mauritius*: Baobab, Gros mapou, Anai pouliya, Bumni umli—; *Mbonge*: Ngubwele—; *Mende*: Bo-wulni—; *Morar*: Vilaytiyimbi—; *Mossi*: Toyega—; *None*: Boh—; *Nupe*: Muchi—; *Porebunder*: Gorakhambali—; *Portuguese Africa*: Embondeiro—; *Portuguese Guinea*: Calabaceira—; *Russian*: Adansonia, Baobab—; *Sakalave*: Sefo—; *Sanskrit*: Chitrala, Choramli, Dirghadandi, Gandabahula, Gopali, Gorakshi, Panchaparnika, Sarpadandi, Sudandika—; *Serere*: Bak—; *Shuwa Arabic*: Hamar, Hamaraya—; *South Africa*: Baobab, Cream-of-Tartar Tree, Lemonade Tree, Monkey Bread Tree—; *Spanish*: Baobab—; *Susu*: Kiri—; *Swahili*: Mbuyu—; *Tamil*: Anaippuli, Papparappuli, Perukku, Puri—; *Telugu*: Barhmamlika, Maggimavu, Simachinta—; *Tigre*: Hoemmer, Hoemret—; *Tigrinia*: Dima, Dumma—; *Timne*: Diaroebai—; *Tschaudjo*: Taelu, Telu—; *Tukulor*: Boki—; *Twi*: Adade, Ototaa, Ototowa—; *Walo*: Alu—; *Wolof*: Gui—; *Yoruba*: Ose, Oshe—.

Bombax.

This genus includes 60 tropical species.

B. Ceiba Linn. is used medicinally in China, Cambodia, Malaya, and the Philippine Islands; *B. brevicuspe* Sprague in Liberia; *B. buonopozense* P. Beauv. in tropical West Africa.

Bombax Ceiba Linn. (=*B. malabaricum* DC.) occurs throughout the hotter parts of India, Burma, and Ceylon. It is abundant on the eastern side of India, ascending to 4,000 feet in altitude. It is distributed to Malaya, Sumatra and Java.

The root has stimulant and tonic properties. The bark and the root are emetic. The young roots, dried in the shade and powdered, form the chief ingredient in the *muslasemul,* a medicine highly thought of as an aphrodisiac; it is also given in impotence.

The roots of saplings upto about three years old are known as 'Semarkanda' in the Central Provinces and are used as a nerve tonic and as an astringent.

The gum or dried juice, *mocha-ras,* which the tree yields, is used as an aphrodisiac. It contains a large proportion of tannic and gallic acids, and may be successfully employed in cases requiring astringents. The gum has also tonic and alternative properties, and is used in diarrhoea, dysentery, and menorrhagia.

The dried flowers, with poppy seeds, goats' milk, and sugar, are boiled and inspissated, and of this conserve two drachms are given three times a day in haemorrhoids.

The flowers and fruit in combination with other drugs are recommended for the treatment of snake-bite and scorpion sting; but Caius and Mhaskar have shown experimentally that neither the flower nor the fruit have any antidotal value against snake or scorpion venoms.

In Cambodia the bark is used as a styptic in abnormal uterine bleeding, the root is considered diuretic, and the gum is occasionally administered in water for gonorrhoea.

In China the flowers are applied externally to boils, sores, and itch.

Basim: Khatsawar—; *Bengal*: Roktosimul, Simul—; *Bhil*: Khatseori—; *Bombay*: Katesaveri, Saer, Saur, Semul, Shembal, Somr—; *Burma*: Didu, La-i, Lepanbin, Letpan—; *Cambodia*: Roka—; *Canarese*: Apurani, Buraga, Burga, Burla, Dudi, Elava, Hatti, Kempuburaga, Kempuburga, Mullelava, Mulluburaga, Pishphele, Sauri—; *Central Provinces*: Semar, Semur—; *Ceylon*: Parutti—; *Chinese*: Mu Mien—; *Deccan*: Kantonkakhatyan, Kantonkasemul, Lalkhatyan—; *English*: Cotton Tree, Red Cotton Tree, Red Silk-cotton Tree, Silk-cotton Tree—; *Formosa*: Moc-main, Pun chi—; *French*: Bombax de Malabar, Cotonnier Mapou, Kapokier du Tonkin—; *Garhwal*: Shimal—; *Garo*: Bolchu, Panchu—; *Gond*: Vallaiki—; *Gujerat*: Ratoshemalo, Sauvor, Sawar, Shemalo, Shimar, Shimlo, Shimul—; *Hazara*: Simbal—; *Hindi*: Kantisembal, Pagun, Ragatsemal, Ragatsembrel, Raktasimul, Semal, Semul, Semur, Shimbal, Simal, Somr—; *Indo-China*: Gao, Sich moc mien thu—; *Khond*: Kamba—; *Kolami*: Del, Edel, Idel—; *Konkani*: Sanvor, Sauvor—; *Kumaon*: Shimbo—; *Lambadi*: Chamblero—; *Lepcha*: Sunglu, Tung-glu—; *Magahi*: Lapaing—; *Malaya*: Mook min, Simur—; *Malayalam*: Ilavu, Mocha, Mullilava, Pichila, Pula, Purani, Unnamuriku—; *Mal Pahari*: Simue—; *Marathi*: Kantasair, Kanterisamar, Kantesavar, Khatsawar, Sair, Sairi, Samar, Savara, Savari, Sayar, Semal, Shevari, Simlo, Tamari—; *Matheran*: Sarvar, Tambdi savar—; *Melghat*: Saori—; *Mund'ari*: Edelsanga—; *Palkonda*: Wuraga—; *Persian*:

Simbal—; *Portuguese*: Algodoeiro do matto, Arvore de panha, Panheira sumauma—; *Punjab*: Sum—; *Sanskrit*: Apurani, Bahuvirya, Chirayu, Chirjivi, Dirghadruma, Dirghapadapa, Dirghayu, Duraroha, Kadala, Kalpavriksha, Kantakadruma, Kantakaria, Kantakashtha, Kukkutavandaka, Kukkutti, Mahavriksha, Mocha, Mochani, Nirgandhapushpi, Nissara, Pnachaparni, Pichhala, Purani, Raktapushpa, Raktotpala, Ramyapushpa, Salmili, Shalmali, Shalmalini, Shimulu, Sthirayu, Sthulaphala, Tulavriksha, Tulini, Tuliphala, Yamadruma—; *Santal*: Edel—; *Saora*: Buroh—; *Sinhalese*: Kattuimbul—; *Sutlej*: Shirlan—; *Tagalog*: Bobuygubat, Buboygubat, Malabulac—; *Tamil*: Agigi, Ilavam, Ilavu, Kongu, Mullilavu, Parutti, Pongar, Pulai, Purami, Sallagi, Samani, Sanmali, Selavagu, Sitten, Surabu—; *Telugu*: Buraga, Kondaburaga, Mundlaburaga, Pinnaburaga, Salmali—; *Tulu*: Ala, Mullala—; *Uriya*: Buro, Mochoroso, Salmali, Simuli—; *Visayan*: Quesero, Salay, Talutu—.

Ceiba.

This genus consists of 10 tropical species, mostly American.

Ceiba pentandra (Linn.) Gaertn. (=*Eriodendron anfractuosum* DC.) occurs in the forests throughout the hotter parts of India and Ceylon; it is distributed to South America, the West Indies, and tropical Africa.

The juice obtained from the roots is considered a most valuable cure for diabetes.

The tree yields a gum which is astringent and used as a remedy for bowel complaints. It is a popular remedy for diarrhoea and dysentery.

The unripe fruit is regarded as demulcent and astringent.

In Cambodia the bark is used as a diuretic, astringent, and febrifuge; the very young plant with its leaves and bark is used externally in fevers as a lotion or a bath, and is given internally as an emetic to cure drunkenness; the fruit is prescribed in migraine and vertigo.

In Annam the bark is considered emetic; the flowers are given in lochiorrhoea, and in plague; the oil from the seeds is used as an emollient.

In Ubangi-Shari a decoction of the root is used internally as a drink and externally as a lotion in cases of emaciation and general debility.

In Guinea the young leaves are used as an emollient, and a decoction or infusion of the flowers is given as a laxative.

In La Reunion the bark is used as an emetic.

The leaves and fruits have emollient properties and are used in various parts of tropical West Africa to wash the head and face in fever, headache, etc. A decoction of the flowers is used in French Guinea for constipation. In parts of Cameroons the bark is pounded and macerated in cold water to apply to a swollen finger. In Liberia an infusion of the bark is used as a mouth-wash.

Abé: Gbi—; *Abuan*: Umum—; *Agni*: Enya—; *Akposso*: Ju, Juna—; *Anago*: Ogufé—; *Anang*: Ukum—; *Angola*: Mafuma, Mafumeira, Suma-uma—; *Annam*: Cay gao, Cay gon, Cay moc khoang, Moc mien—; *Aowin*: Enya—; *Aro-Chuku*: Agpu-ugu—; *Ashanti*: Ongina, Onyang, Onyina—; *Atakpame*: Huti, Wuti—; *Attié*: Muong, Nguéhié—; *Awuna*: Fuleng, Futi, Vu, Vuti—; *Bakwiri*: Buma, Wuma—; *Balundu*: Bum—; *Bambara*: Bana, Banan—; *Banda*: Kopou—; *Bariba*: Gouma—; *Baulé*: Nyé—: *Basari*: Bubumbu, Bufu—;

Bemoba: Gbang—; *Bengal*: Shwetsimul—; *Benin*: Okha—; *Bicol*: Cayo—; *Bobo-Dioulasso*: Pi—; *Boki*: Bokum—; *Bondoukou*: Ton'go, Ton'ko—; *Brignan*: Etchoui—; *Brong*: Ekile—; *Burma*: Thinbawle—; *Bussanke*: Gbée—; *Cambodia*: Kor—; *Canarese*: Apurani, Bilibarlu, Biliburaga, Biliburga, Buraga, Burga, Dudi, Elava—; *Cebu*: Bulacdondol—; *Central America*: Ceiba—; *Ceylon*: Elavam, Illaku, Imbul, Pulunimbul—; *Cuba*: Ceiba—; *Dagarti*: Goni—; *Dagomba*: Gunga—; *Dahomey*: Dehon, Gué dehonsu, Hunti—; *Dakpwa*: Kapou—; *Deccan*: Khatyan, Sufedkhatyan—; *Dendi*: Bantan—; *Diola*: Busaira, Busana—; *Ebrié*: Agué—; *Efik*: Ukem, Ukum—; *Engenni*: Akawu—; *English*: Cotton Tree, Kapok, Kapok Floss, White Cotton Tree, White Silk-cotton Tree—; *Ewe*: Ewu, Futi, Vu, Vuti, Wu, Wudesé—; *Fanti*: Nyahene, Nyina—; *Fong*: Huti, Wuti—; *French*: Bois épineux, Fromager commun, Kapokier, Ouatier—; *Fulani*: Bantahi, Bantignei, Bentegnievi, Linihi, Rinihi—; *Ga*: Onyai-tsho—; *Gbari*: Gehi, Gyehi—; *Gbaya*: Guela, Guila—; *Gouin*: Belon—; *Gouro*: Ngoué—; *Grand Popo*: Hunti—; *Guam*: Algodon de Manila—; *Guene*: Bentan habu—; *Gujerat*: Doloshamlo—; *Gurunshi*: Gung—; *Hausa*: Rimi, Rini—; *Hindi*: Hattian, Katan,, Safedsemal—; *Hova*: Landihazobe—; *Ibibio*: Ukem akabi, Uman ukem—; *Ibo*: Akbo, Akbu, Akpu—; *Ijaw*: Asisaga, Kpasukaro, Shakka, Shakra, Sishara—; *Ilocano*: Capas, Capassanglay, Dondol—; *Indo-China*: Gon, Kok niou, Kor—; *Java*: Kapok—; *Jekri*: Egungun—; *Jolo*: Capoc—; *Kabure*: Komu—; *Kalabari*: Afalafasi—; *Kanuri*: Tom—; *Khandesh*: Katsavan—; *Konkomba*: Bufu-sogbum, Kpugbum—; *Konno*: Banda—; *Kontagora*: Rimi—; *Kpandu*: Loe—; *Kratchi*: Keshafu—; *Krepi*: Ofwho, Ovua, Wuti—; *Krobo*: Leno—; *Kukuruku*: Okho—; *Kwale*: Akpo—; *Lagos*: Eggun—; *Lahu*: Egna—; *Langwasi*: Kepou—; *Laos*: Kokuiyu—; *La Reunion*: Ouatier—; *Losso*: Bahun, Ubonbe—; *Lower Amazon*: Sumaumeira—; *Malayalam*: Ilavu, Mullillapappula, Nakuli, Panni, Panniyala, Pula—; *Malinke*: Bana, Banan, Busana—; *Mamprussi*: Gunga—; *Mandingo*: Bantang, Bantango, Bentafore, Bentang, Bentango, Bintaforo—; *Mano*: Geh—; *Marathi*: Pandhari, Pandhrasaur, Salmali, Safetasavara, Samoli, Shamieula—; *Mende*: Nguwe—; *Nago*: Ogufe—; *Nankani*: Gonga—; *None*: Len—; *Nzima*: Eguina, Eniémé, Enyan'goua—; *Nupe*: Kuchi—; *Onele*: Tiou—; *Onitsha*: Akpu-ogwu, Ok-akpu—; *Onitsha Olona*: Kpakpa—; *Owerri*: Akpu-udele, Mbom—; *Pampangan*: Bulac castila—; *Portuguese Guinea*: Pelon, Poilao—; *Sakalave*: Moraingy, Pamba, Pemba—; *Salaga*: Kakre—; *Sango*: Ndoulou—; *Sanskrit*: Chiragu, Kutashalmali, Kutsitashalmali, Mocha, Rochana, Salmali, Shvetasalmali, Sthiraya—; *Sarracole*: Batiugne—; *Sassandra*: Go—; *Savalou*: Gué dehunsu—; *Sefwi*: Enya—; *Serere*: Bouday, Mboudaye—; *Shuwa Arabic*: Rum—; *Sinhalese*: Imbul, Kottapulung, Pulung—; *Sobo*: Okahen—; *Spanish*: Algodon de Manila—; *Susu*: Konole—; *Tagalog*: Boboy ,Bubuy, Bulac, Bulac sino—; *Tagouana*: Sérigné—; *Tamil*: Ilavam, Karukkanam, Panji—; *Telugu*: Kadami, Tellaburaga—; *Timne*: Am-polong, A-pullo, Ke-polong, Ma-pullo—; *Tivi*: Vambe, Yambe—; *Tschaudjo*: Komu—; *Tulu*: Ala—; *Turca*: Blo—; *Twi*: Ongina, Onyang, Onyina—; *Umu Ahia*: Akpo—; *Urdu*: Sambal—; *Visayan*: Daldol—; *Wassaw*: Enyina—; *Wele*: Tiou—; *West Indies*: Silk-cotton Tree—; *Wolof*: Bantang, Bantango, Bentang, Bentango, Bentegnié, Benten, Betenbi—; *Yoruba*: Araba—.

IV

The TERNSTROEMIACEAE are trees or shrubs of tropical Asia and America. A few are to be found in Africa.

Stimulant, astringent, and antidysenteric properties. Some barks are powerful vesicants.

The stimulants owe their action to the alkaloids caffeine and theophylline. Methyl salicylate and quercitrin have been isolated from some of them.

Medicinal properties are to be found in 9 genera: ACTINIDIA (Eastern Asia); ANNESLEA (Indo-Malayan); CAMELLIA (India, China, Japan); GORDONIA (Indo-Malaya, China, North America); KIELMEYERA (South Brazil); NESOGORDONIA (Madagascar); SAURAUJA

(tropical Asia, America); SCHIMA (Eastern Indo-Malaya); TERNSTROEMIA (South America, Asia).

The medicinal species of India belong to 6 genera: ANNESLEA, CAMELLIA, GORDONIA, SAURAUJA, SCHIMA, TERNSTROEMIA.

A. Peduncles many-flowered ... ... SAURAUJA.

B. Peduncles one-flowered.

1. Fruit half inferior, drupaceous ... ... ANNESLEA.
2. Fruit superior.
   a. Anthers basifixed ... ... TERNSTROEMIA.
   b. Anthers versatile.
      i. Seeds wingless ... ... CAMELLIA.
      ii. Seeds winged.
         α Radicle inferior. Fruit globose ... SCHIMA.
         β Radicle superior. Fruit oblong ... GORDONIA.

ANNESLEA.

The genus consists of 2 species inhabiting Burma, Camodia, and the Malay Peninsula.

Anneslea fragrans Wall. occurs in the Eastern Peninsula, Moulmein and Martaban.

The bark and the flowers are used medicinally in Cambodia. The former is considered antidysenteric and anthelmintic; the latter are said to be antiperiodic.

Cambodia: Sauphi—.

CAMELLIA.

The genus consists of about 10 species spreading from India to Japan.

Root and bark astringent and antidysenteric; leaves astringent, antidysenteric, digestive, tonic, and diaphoretic.

C. japonica Linn. is used medicinally in China, *C. Thea* Link in China and Indo China.

Flowers erect, sepals deciduous ... ... *C. drupifera.*
Flowers nodding, sepals persistent ... ... *C. Thea.*

1. **Camellia drupifera** Lour. occurs in Eastern Himalaya, at 3,000-7,000 feet, from Nepal to Bhutan; in Assam and the Khasia Mountains, at 5,000-8,000 feet; in Tenasserim and the Andaman Islands.

The oil-cake from the seeds is used in Tongking to stupefy fish.

Indo-China: Cha mai, Dan-che, so—.

2. **Camellia Thea** Link (=*Thea sinensis* Linn.) occurs in Assam and the hilly country to the East of it, and in Upper Burma. It has been cultivated for ages in China and Japan. It is now extensively cultivated in Assam, Cachar, Sikkim, North-Western Himalaya, the Nilgiris, and Ceylon.

Tea is astringent and gently excitant, and exerts a decided influence over the nervous system.

Arabic: Chha—; *Assam*: Hilkat—; *Burma*: Letpet—; *Cachar*: Dullicham—; *Canarese*: Cha, Chaha, Theyale—; *Chinese*: Ming—; *Danish*: The—; *Dutch*:

Thee—; *English*: Assam Tea, China Tea, Indian Tea, Tea—; *French*: Thé, Thé de Chine, Théier—; *German*: Thee—; *Gujerati*: Chah—; *Hindi*: Cha, Chha—; *Hungarian*: Tea—; *Indo-China*: Cao lo, Cha, Cha ginh, Che, Te ve, Tra, Tra hue—; *Italian*: Te—; *Japanese*: Teh, Tsja—; *Malaya*: Cha, Te—; *Malayalam*: Chaya, Teyila—; *Marathi*: Chaha—; *Mundari*: Cadaru—; *Muttack*: Khlap, Misaphlap, Phlap—; *Persian*: Ca, Chha, Chaikathai—; *Polish*: Te—; *Portuguese*: Cha, Cha da India—; *Punjabi*: Cha—; *Roumanian*: Ceaiu—; *Russian*: Tshay—; *Sanskrit*: Chaha, Chavika—; *Scotch*: Te—; *Sinhalese*: Thaygas—; *Spanish*: Te, Te de China—; *Swedish*: Thee—; *Tamil*; Karupputteyilai, Pachaitteyilai, Teyilai—; *Telugu*: Nallateyaku, Teyaku, Tiyaku—; *Tulu*: Cha—; *Turkish*: Chai—; *Urdu*: Chai—; *Uriya*: Cha—.

Gordonia.

The genus numbers 20 species, found in the Indo-Malayan region, China, and North America.

Gordonia obtusa Wall. occurs in the Konkan, the Western Ghats of the Madras Presidency chiefly of the Eastern side, usually from 5,000 to 7,000 feet, lower in Travancore.

In the Nilgiris an infusion of the leaves is given as a stomachic, stimulant, and appetiser.

Badaga: Nagatte—; *Kadir*: Attangi, Ola—; *Nilgiris*: Nagetta—; *Tamil*: Miyilai—.

Saurauja.

The genus numbers 60 species distributed over tropical Asia and America.

Saurauja napaulensis DC. occurs in Temperate Himalaya, from Bhutan and Sikkim—at 5,000-7,000 feet—to Garhwal—at 2,400-5,000 feet; in the Khasia Mountains, at 5,000 feet; in the Mishmi Hills.

In Tongking the bark is used as a poultice to help the extraction of splinter imbedded in the flesh.

Hindi: Gogina—; *Jaunsar*: Ratendu—; *Kumaon*: Gogin, Gogna, Gugna—.

Schima.

The genus consists of 10 Indo-Malayan species.

The bark is vesicant.

S. Noronhae Reinw. is used medicinally in Indo-China.

Flowers in a loose terminal corymb, peduncles smooth slender ... ... *S. crenata.*

Flowers in a short terminal raceme, peduncles with minute white warts ... ... *S. Wallichii.*

1. **Schima crenata** Korth. occurs in the Eastern Peninsula from Tenasserim to Penang, and in Burma. It is distributed to Borneo and Sumatra.

The stem and the sap are used medicinally in Cambodia. The stem is given in nausea; its bark is vesicant. The extremities of the young shoots are gently warmed and the sap that exudes is dropped in the ear for otitis.

Cambodia: Trathok—; *Indo-China*: Rma, Sang soc, sat hat—.

2. **Schima Wallichii** Choisy occurs in Nepal, Sikkim up to 5,000 feet, Bhutan, Assam, the Khasia Hills, Manipur, Chittagong, and Upper Burma.

The bark is nearly black externally, with deep clefts; the liber is made up of an abundance of white, needle-shaped cells, which are readily detached and act as cowage, in producing painful irritation, when brought into contact with the skin.

Anthelmintic and rubefacient.

Assam: Chilauni, Makria, Makusal, Mukriasal—; *Bhutia*: Samching—; *Burma*: Ananpho, Laukya, Theetya—; *Cachar*: Jam—; Duars: Chilauni—; *Garo*: Boldak—; *Goalpara*: Gugera—; *Hindi*: Chilauni, Makriya, Makriyachilauni, Makusal—; *Khasia*: Dingan—; *Lepcha*: Sambrong—; Sung-brong kung, Sung-sung kung—; *Nepal*: Chilauni, Goechassi—; *Sema*: Michi-sii—; *Sikkim*: Chilauni—.

Ternstroemia.

The genus numbers 35 species inhabiting tropical Asia and America.

Ternstroemia japonica Thunb. occurs in Eastern Bengal and the Eastern Peninsula, from the Khasia Mountains at 4,000-5,000 feet to Moulmein; in the Western Peninsula, in the Nilgiris; and in Ceylon. It is distributed to Sumatra, China, Japan, and the Loochoo Islands.

The bark and the root are astringent. They are used in Japan as an antidysenteric.

Indo-China: Giang nui, Hoa bi huong, Son cha hoa—.

V

The Hypericaceae are herbs, shrubs or trees, spread over the temperate and hot regions of the globe, and especially in the northern hemisphere. There are 8 genera with about 210 species.

The medicinal Tutsans of the world belong to 5 genera: Cratoxylon (Indo-Malayan); Haronga (tropical Africa, Madagascar, Mauritius); Hypericum (cosmopolitan, temperate regions); Psorospermum (tropical Africa, Madagascar); Vismia (tropical America).

Two of the above, Cratoxylon and Hypericum, are represented in India.

1. Capsule dehiscing loculicidally. Seeds winged ... Cratoxylon.
2. Capsule dehiscing septicidally or at the placentas. Seeds not winged ... ... Hypericum.

Cratoxylon.

The genus consists of 12 species inhabiting tropical Asia.

C. Hornschuchii Blume is used medicinally in Java, *C. neriifolium* Kurtz in Indo-China.

Cratoxylon neriifolium Kurtz is found in Chittagong, and in Burma: Teiyet, Pegu, Prome hills.

In Tongking, an infusion of the leaves is considered a very powerful digestant.

Indo-China: Nganh nganh, Thank nganh—.

Hypericum.

The genus numbers 220 species, spread over the whole world, chiefly in temperate regions.

Vulnerary, astringent, and anthelmintic. The seeds may be diuretic and antispasmodic.

The following are used medicinally:—in Europe—*H. Androsaemum* Linn., *H. barbatum* Jacq., *H. Coris* Linn., *H. elegans* Steph., *H. hircinum* Linn., *H. hirsutum* Linn., *H. humifusum* Linn., *H. montanum* Linn., *H. perfoliatum* Linn., *H. perforatum* Linn., *H. pulchrum* Linn., *H. quadrangulum* Linn., *H. Richeri* Vill., *H. tetrapterum* Fries.—; in Indo-China—*H. ascyron* Linn., *H. chinense* Linn., *H. erectum* Thunb., *H. japonicum* Thunb. *H. patulum* Thunb., *H. Sampsoni* Hance—; in Malaya—*H. japonicum* Thun.—; in Southern Africa—*H. aethiopicum* Linn., *H. lalandii* Chois.—; in La Reunion—*H. angustifolium* Lam.—; in Madagascar— *H. japonicum* Thunb.—; in North America—*H. Ascyron* Linn., *H. maculatum* Walt., *H. mutilum* Linn., *H. perforatum* Linn.—; in Colombia—*H. Brathys* Lam., *H. Chamaemyrtus* Tr. and Pl., *H. Humboldtianum* Steuder, *H. mexicanum* Linn., *H. platyphyllum* Gleason, *H. thesiifolium* H. B. K.—; in Brazil—*H. connatum* Lam., *H. laxiusculum* St. Hil.—.

A. Sepals 5, unequal; petals deciduous; stamens 5-adelphous at the base; ovary 5-celled.
   1. A glabrous shrub, 30-90 cm. high ... ... *H. patulum.*
   2. Stem none but branches innumerable ... ... *H. chinense.*

B. Sepals 5, connate at the base, equal or unequal; petals persistent; stamens 3-adelphous at the base; ovary 3-celled.
   1. Styles twice the length of the ovary, equalling the stamens ... ... *H. perforatum.*
   2. Styles very short ... ... *H. Sampsoni.*
   3. Styles half the length of the ovary ... *H. humifusum.*

C. Sepals 5; petals persistent; stamens connate at the base; ovary 1-celled ... ... *H. japonicum.*

1. **Hypericum chinense** Linn., a native of China, is cultivated in many Indian gardens.

The plant is astringent and alternative. In Indo-China the leaves and the green stems are made into a paste and applied to bites from dogs and stings from bees.

Indo-China: Kim ty dao—.

2. **Hypericum humifusum** Linn. grows in the Nilgiris. It is distributed over Europe, the Atlantic Isles, and South Africa.

In Europe the flowers are infused in olive oil or in alcohol and used as a vulnerary, chiefly for old sores and eczema.

English: Trailing St. John's Wort—.

3. **Hypericum japonicum** Thunb. is found in temperate and subtropical Himalaya, the Khasia Hills, Assam, Burma, Eastern and Western Peninsula, and Ceylon. From Japan it spreads to China and Indo-China, the Philippine Islands, Java, Australia, New Zealand, and Madagascar.

In China and Indo-China the plant is credited with astringent and alterative action, and externally it is used as vulnerary.

In Madagascar the plant is used as a vulnerary, styptic, anti-asthmatic, and antidysenteric.

Betsimisaraka : Manitsorohina— ; *Cantonese* : Thin Kee Wang— ; *Chinese* : T'ien Chi Wang— ; *Hova* : Anangoaika, Anantatara, Tsikotrakotra, Voantro-troka— ; *Imerina* : Tsikotrokotroka— ; *Indo-China* : Ban—.

4. **Hypericum patulum** Thum. occurs in the Khasia Hills 5,000-6,000 feet ; throughout the temperate Himalaya (except Sikkim) at 3,000-7,000 feet, from Bhutan to the Ravi. It is also found in China, Formosa, and Japan.

The scented seeds are employed as an aromatic stimulant in Patna, where they are imported from Nepal (Irvine).

In Indo-China they are used both externally and internally as a remedy for the bite of dogs and the sting of bees.

Behari : Tumbhul— ; *Indo-China* : Kim ty mai—.

5. **Hypericum perforatum** Linn. occurs in the temperate Western Himalaya at 6,000-9,000 feet ; in Kashmir and Simla, apparently not in Kumaon. It is distributed to Northern temperate Asia, Europe, and North Africa.

The plant has been, and is still, recognized in Europe as aromatic bitter, astringent, resolvent, expectorant, and nervine. It is used in all pulmonary complaints, bladder troubles, in suppression of urine, dysentery, worms, diarrhoea, hysteria and nervous depression, hoemoptysis and other haemorrhages, and jaundice. For children troubled with incontinence of urine at night an infusion or tea given before retiring will be found effectual; it is also useful in pulmonary consumption, chronic catarrh of the lungs, bowels, or urinary passages. Externally for fomentations to dispel hard tumours, caked breasts, ecchymosis, etc.

It is recommended in Arabian medicine as a vermifuge ; and is also used to cure piles, prolapsus uteri and ani.

The red juice is esteemed in Europe and China as one of the most popular and most curative applications for excoriations, wounds, and bruises.

The juice gives a red colour to the spirit of wine with which it is mixed, and to expressed oils. The oil of St. John's Wort is made from the flowers infused in olive oil. This oil is highly useful for healing bed sores, and is commended as excellent for ulcers.

The flowering tops are bitter, terebinthinate, acrid, and vulnerary. A salve compounded from the flowers, and known as St. John's Wort Salve, is still much used and valued in English villages.

Homoeopathic practitioners prepare a medicinal tincture with spirit of wine from the entire fresh plant, collected when flowering, or in seed, and this proves of capital service for remedying injuries to the spinal cord, both by being given internally and used externally. It has been employed in like manner with benefit for lock-jaw.

Yunani practitioners consider the leaves a good application for

scorpion sting. However, Caius and Mhaskar have shown experimentally that the leaves are not an antidote to scorpion venom.

The weed is poisonous to horses.

Arabic : Lioufarikoun, Khashkhash-el-asoued, Mesmoune—; *Catalan* : Herba de cop, Herba foradada, Herba de Sant Joán, Hypericon, Pericó groc—; *Chinese* : Ia Iou—; *Danish* : Jordhumbe, St. Hans urt—; *Dutch* : St. Jans Kruid—; *English* : Amber, Devil's Scourge, Grace of God, Hard Hay, Hundred Holes, Lord God's Wonder Plant, St John's Grass, St John's Wort, Terrestrial Sun, Witch's Herb—; *Finland* : Werdu heino—; *French* : Chasse diable, Herbe à millepertuis, Herbe à mille trous, Herbe aux piqûres, Herbe de la Saint-Jean, Herbe saint Jean, Millepertuis, Millepertuis officinal, Trascalon perforé, Trescalan, Trucheron jaune, Truscalan—; *German* : Christiankraut, Christignadenkraut, Christikreuzblume, Christikreuzblut, Christiwundkraut, Christwundkraut, Conradskraut, Durchwachs, Elfenbeutkraut, Frauvonwurde, Gartheu, Harthau, Hartenan, Hartheu, Hasenkraut, Hexenkraut, Jagemichel, Jageteufelkraut, Johannesblume, Johanniskraut, Hohannesblut, Hohanneskraut, Hohannsinkrut, Kannsblut, Sankt Johanniskraut, Scharnokel, Schernekel, Tausendloch, Teufelsflucht, Teufelsraub, Unsereliebenfrauenbettstroh, Urldgartheil, Wolfkraut—; *Hindi* : Bassant, Dendhu—; *Italian* : Cacciadiavoli, Erba di San Giovanni, Iperico, Ipericone, Perforata, Pilatro—; *Languedoc* : Trescalan, Trescoulaou—; *Malta* : Pitted St. John's Wort, Cacciadiavoli, Erba di San Giovanni, Iperico—; *North America* : Balm-of-warrior's-wound, Cammock, Common St John's Wort, Penny-John, Rosin-rose, Tipton-weed—; *Polish* : Dziurawice—; *Portuguese* : Herva de San Joao, Hypericao, Milfurada—; *Provence* : Herbo de l'oli rouge, Herbo de la San-Jean—; *Punjab* : Bassant, Dendlu—; *Roumanian* : Iarba lui Sfant Ioan, Iarba sfantului Ioan, Pojarnita, Sunatoare—; *Russian* : Zweroboi—; *Spanish* : Corazoncillo, Hierba de las heridas, Hypericon, Pericon, Yerba de San Juan—; *Swedish* : Johannisoert—; *Urdu* : Balsana—.

6. **Hypericum Sampsoni** Hance occurs in the Khasia Mountains. It is distributed to South China and Formosa.

In Tongking the plant is used as a vulnerary.

Indo-China : Nguyen bao thao—.

VI

The ELATINACEAE are herbs or undershrubs, widely dispersed, especially in the Old World. They inhabit ditches and the submerged shores of ponds and rivers. There are 30 species grouped in 2 genera.

The plants credited with medicinal properties all belong to the genus BERGIA.

BERGIA.

The genus consists of 25 species, inhabiting tropical and temperate regions.

B. decumbens Planch. is used medicinally in South Africa, *B. guineensis* Hutch. and J. M. Dalz. in Northern Nigeria.

Bergia odorata Edg. is found in Sind, Western Rajputana, and Gujerat. It is distributed over Persia, Egypt, and tropical Africa.

Used for cleaning teeth and, in Jodhpur, applied to broken bones. The leaves rubbed down in water are used as a poultice for sores (Macadam).

Hadeija : Babargiwa—; *Porebunder* : Gangharun, Lavadiyun, Okharal—; *Rajputana* : Karbuja, Kakria, Rohwan—; *Sokoto* : Bushi, Dushiya, Jisshiya—.